

DCI: Earth's Systems

5.ESS2.A: Earth Materials and Systems

Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

DCI: Earth's Systems

5.ESS2.C: The Roles of Water in Earth's Surface Processes

Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)

Performance Expectation

5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.

Assessment Boundary: Assessment is limited to the interactions of two systems at a time.

Performance Expectation

5-ESS2-2: Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

Clarification Statement: none

Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.

Science and Engineering Practice

Developing and Using Models

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

Develop a model using an example to describe a scientific principle.

(5-ESS2-1)

Science and Engineering Practice

Using Mathematics and Computational Thinking

Mathematical and computational thinking at the 3–5 level builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.

Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2)

Crosscutting Concept

Scale, Proportion, and Quantity

Standard units are used to measure and describe physical quantities such as weight and volume. (5-ESS2-2)

Crosscutting Concept

Systems and System Models

A system can be described in terms of its components and their interactions. (5-ESS2-1)

Common Core State Standards for ELA/Literacy

Reading Informational Text

RI.5.7 - Integration of Knowledge and Ideas

Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS2-1), (5-ESS2-2)

Common Core State Standards for ELA/Literacy

Speaking & Listening

SL.5.5 - Presentation of Knowledge and Ideas

Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS2-1), (5-ESS2-2)

Common Core State Standards for ELA/Literacy

Card Type name

W.5.8 - Research to Build and Present Knowledge

Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS2-2)

Common Core State Standards for Mathematics

Geometry

5.G.A.2 - undefined

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)

Common Core State Standards for Mathematics

Mathematical Practices

MP.2 - Reason abstractly and quantitatively

CCSS text (5-ESS2-1), (5-ESS2-2)

Common Core State Standards for Mathematics

Mathematical Practices

MP.4 - Model with mathematics

CCSS text (5-ESS2-1), (5-ESS2-2)